CLAIMS:

1. Apparatus (10; 20; 70; 90; 100) comprising a level shifter (15; 75; 95; 103) connectable to a signal input (1; 31; 71; 91) for receiving an input signal (s(t)) with a negative signal swing, said level shifter (15; 75; 95; 103) providing for a DC shift of said input signal (s(t)) to provide an output signal (r(t)) with positive signal swing, said level shifter (15; 75; 95; 103) comprising: an amplifier (17; 77) having a first input (11; 61), a second input (12; 62), and an output (13; 73), a first capacitor (C1), a second capacitor (C2; C2A, C2B to C2n), a reference voltage supply (16; 79), and a transistor (14; 74) serving as a switch, wherein said first capacitor (C1) is arranged between said signal input (1; 71; 91) and said first input (11; 61), said second capacitor (C2; C2A, C2B to C2n) is arranged in a feedback-loop (18) between the output (13; 73) and said first input (11; 61), said reference voltage supply (16; 79) is connectable to said second input (12; 62), and wherein said transistor (14; 74) is arranged in a branch (19; 69) that bridges the second capacitor (C2; C2A, C2B to C2n), whereby a control signal (CNTRL) is applicable to a gate (14.1; 74.1) of said transistor (14; 74) in order to allow the level shifter (15; 75; 95; 103) to be reset from time to time.

2. The apparatus of claim 1, wherein the gain of the amplifier (17; 77) is adjustable by varying the effective capacitance of the capacitors (C2; C2A, C2B to C2n).

3. The apparatus of claim 2, wherein a branch that bridges the second capacitor is provided, said branch comprising a capacitor (C2B, C2n) in series with a switch (sb, sn), whereby the effective capacitance can be varied by opening or closing the switch (sb, sn).

4. The apparatus of claim 2 or 3, comprising an analog-to-digital converter (80) connectable to the output (73) for determining the voltage level at the output (73), and a controller (78; 96) for receiving digital information from to the analog-to-digital converter (80), said digital information representing the voltage level, said controller (78; 96) providing a signal to adjust the effective capacitance.

5. The apparatus of claim 1, 2, or 3, comprising a digital-to-analog converter (79) serving as reference voltage supply, said digital-to-analog converter (79) preferably receiving a digital signal from a controller (78; 96).

6. The apparatus of claim 1, 2, or 3, comprising a bias current source (21; 93) with a network having a plurality of transistors (P1, P2, P3), resistors (R1, R2), and a reference current source (22).

7. The apparatus of claim 6, wherein one of the transistors is a cascode transistor (P3) which is arranged with respect to one of the other transistors (P2) so as to absorb any voltage beyond a supply voltage (Vsupply), if the input signal s(t) at falls below 0V.

8. The apparatus according to one of the preceding claims, further comprising ESD protection means (92) being adapted to handle negative voltage swings at the signal input (91).

9. The apparatus of claim 8, wherein the ESD protection means (92) comprise a first diode (DP2), a second diode (DP1), and a third diode (DCL1), said first diode (DP2) being situated between the signal input (91) and a supply node (101), said second diode (DP1) being situated between the supply node (101) and a substrate (102), and said third diode (DCL1) being situated between the supply node (101) and the substrate (102).